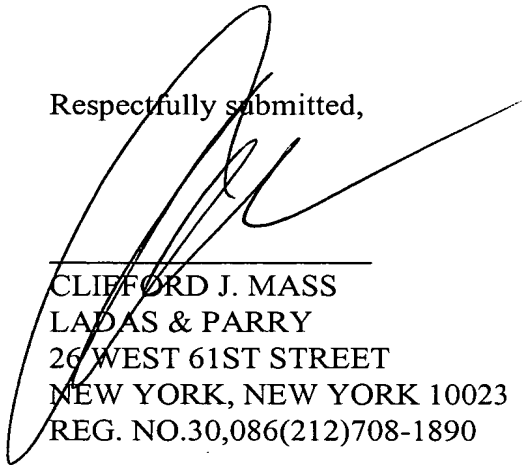


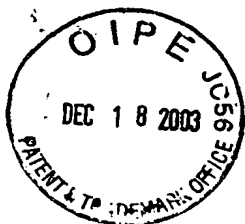
REMARKS

It is respectfully submitted that the above amendatory action overcomes the
draftsperson's objections to the drawings.

Respectfully submitted,



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LADAS & PARRY
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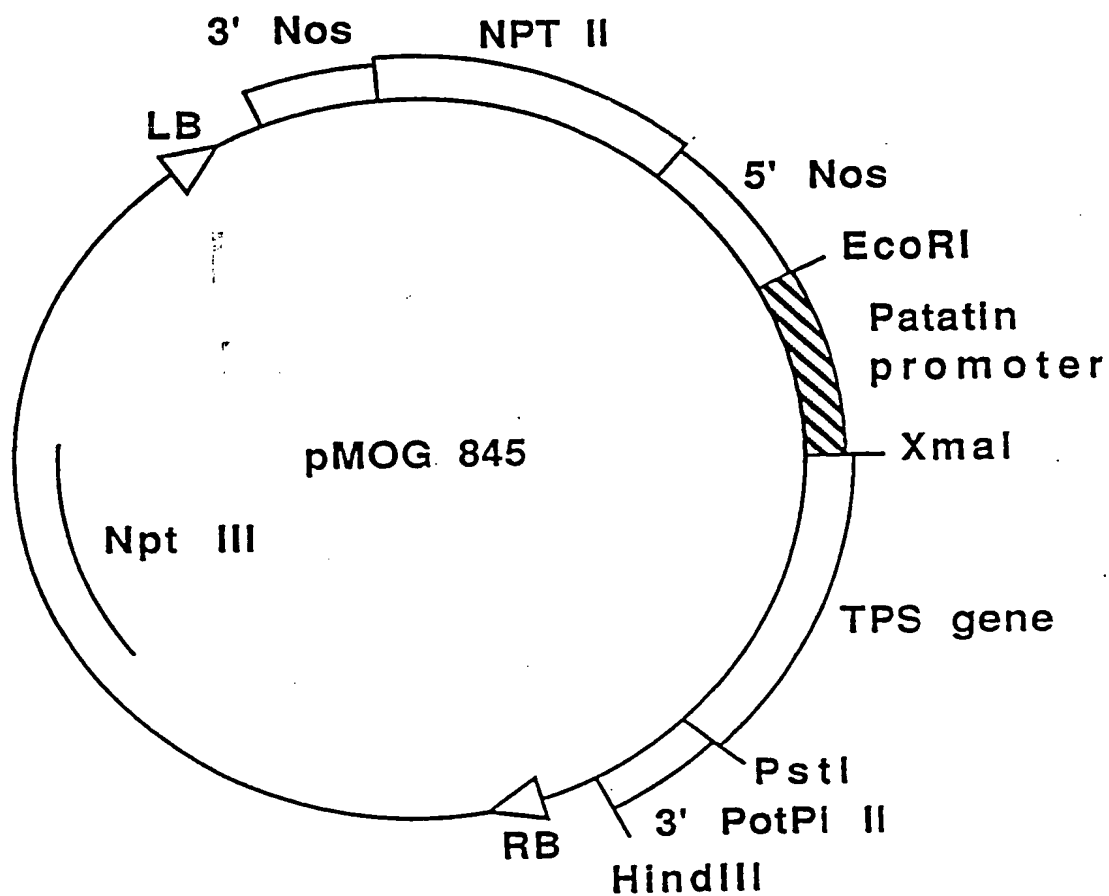


FIG. 1

~~Fig. 1~~



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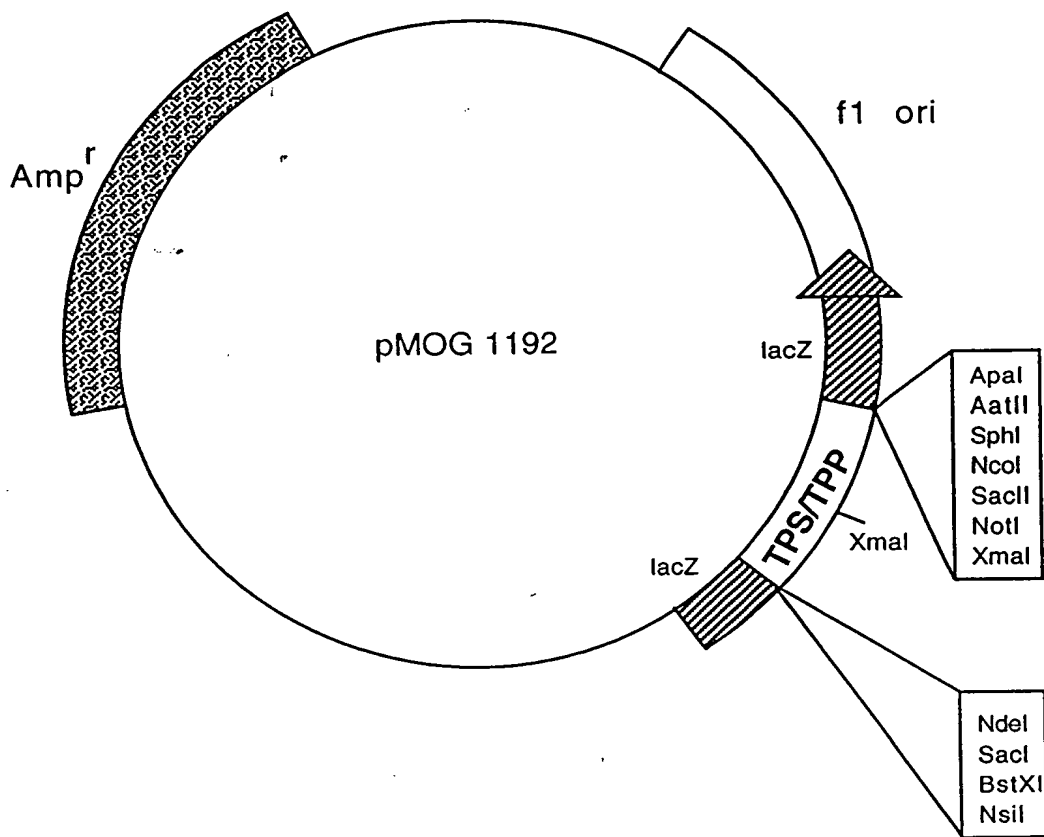


FIG. 2

~~Fig. 2~~

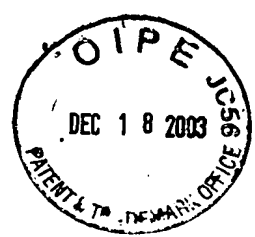
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AA 238
I P Y A V P G G R F N E L Y G W D S Y M N A L G L L E A N K T D V A R G M V
Yeast P F I V P G G R F V E F Y Y W D S Y W V M E G L L S E M A E T V K G M L
Rabbit P Y V V P G G R F R E V Y Y W D S Y F T M L G L A E S G H W D K V A D M V
E. coli G F I V P G G R F K E I Y Y W D A Y W I I E G L L I T D M T E T A K G M I
Silkw. Tase25----->
Tase24 ----->
308
I E H F I F E I N H Y G K I L N A N R S Y Y L C R S Q P P F L T E M ---
Yeast Q N F L D L V T A Y G H I P N G G R V Y Y L Q R S Q P P L L T L M ---
Rabbit A N F A H E I D T Y G H I P N G N R S Y Y L S R S Q P P F F A L M ---
E. coli E N L I E L L Y K F G H I P N G S R W Y Y Q E R S Q P P L L A A M ---
Silkw. Tase26<-----
664
I A A T E G F G W V T N A R Y I L L G L K Y M N ---
Yeast E V Q E G F G W T N G V A L M L L D ---
Rabbit P L Q D G F G W T N G V T L K M L D ---
E. coli V V Q S G F G W T N G V V L E F I N ---
Silkw. Tase27<-----

FIG. 3

~~FIG. 3~~



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Comparison of trehalase sequences derived from different species.

	1				50
Ecoli2trehaMLNQKIQN	PNPDELMIEV	DLCYELDPYE	
Ecolitreha	.....	..MKSPAPS	RPQKMALIPA	CIFLCFAALS	
Bommotreha	.....	.....	.....MRLF	LLLVLGTTV.	
Tenmotreha	.....	.....	.....MIPF	LLMVAFADTV	
Rabbitreha	.....	.....	MPGSTWELHL	LLLLLGLG...	
Potatotreha	.....	.....	..MGKAIIFM	IFTMSMNMK	
Yeasttreha	MSVFDNVSPF	KKTGFGLKQQ	TRRGSEDDTY	SSSQGNRRFF	IEDVDKTLNE
	51				100
Ecoli2treha	LKLDemieae	PEPEMIEGLP	ASDALTPADR	YL.....	ELFEH
Ecolitreha	VQAEETPVTP	QPPDILLG..	.....	.....	PLFND
Bommotreha	..IADDLPT	CIRPVY....	.....C	NS.....	TLLHY
Tenmotreha	LQVSAQSQPS	CDSKVY....	.....C	QG.....	KLLHV
Rabbitreha	LGSEQALPPP	CESQIY....	.....C	HG.....	ELLHQ
Potatotreha	AETCKSIDKG	PVIPTT....	.....P	LV.....	IFLEK
Yeasttreha	LLAAEDTDKN	YQITIEDTGP	KVLKVGTRANS	YGYKHINIRG	TYMLSNLLQE
	101				150
Ecoli2treha	VQSAKIFP..	....DSKTFP	DCAPKMDPLD	ILIRYRKVRR	HRDF.....D
Ecolitreha	VQNAKLFP..	....DQKTFA	DAVPNSDPLM	ILADYRMQQN	QSGF.....D
Bommotreha	VQMARLYP..	....DSKTFV	DFQMRKDENA	TLSAFQELLD	RTNHNPTKED
Tenmotreha	VEMSRIFN..	....DSKTFV	ELKMINDEQT	TLENFDNFLR	DTNHKRTRAD
Rabbitreha	VQMARLYP..	....DDKQFV	DMPLSTAPDQ	VLQSFALAA	TYNNTVPREQ
Potatotreha	VQEAALQTYG	HKGFDKLFV	DMSLRSLSE	TVEAFNKLPR	VVNGSISKSD
Yeasttreha	LTIKSFGRH	QIFLDEARIN	ENPVNRLSRL	INTQF.....	WNSLTRRVD
	151				200
Ecoli2treha	LRKFVENHFW	L.....	.....P	EVYSSEYVSD	PQN.SLKEHI
Ecolitreha	LRHFVNVTFT	L.....	.....P	KE.GEKYVPP	EGQ.SLREHI
Bommotreha	LQEFVVDFFD	E.TSELEEWK	PDDHK..ENP	P.FLAKIRDQ	GFR.EFAKAL
Tenmotreha	LMKFVSDNFK	Q.ENEFESWT	PTDFT..DNP	T.LLSRIEDK	TIR.QFAQDL
Rabbitreha	LEKFVQEHFQ	AVGQELSWT	PGDWK..ESP	Q.FLQKISDP	KLR.AWAEQL
Potatotreha	LDGFIGSYLS	SPDKDLVYVE	PMDFV..AEP	EGFLPKVKNS	EVR.AWALEV
Yeasttreha	LNNVGEIAKD	TKIDTPGAKN	PRIYVPYDCP	EQYEFYVQAS	QMHPSLKLEV
	201				250
Ecoli2treha	DQLWPVLTRE	PQDHI....P	WSSLLALPQ.	.....	SYIVPGGR
Ecolitreha	DGLWPVLTRE	TENTE....K	WDSLLPLPE.	.....	PYVVPGR
Bommotreha	NDIWPTLARR	VKPSVLEKPE	QSSLVPMTH.	.....	GFIVPGGR
Tenmotreha	VKIWPTLARK	VKKEVLDPY	HYSLLPVDN.	.....	GFIIPGR
Rabbitreha	HLLWKKLGKK	IKPEVLSQPE	RFSLIYSQH.	.....	PFIVPGGR
Potatotreha	HSLWKNLRSR	VADHVLEKPE	LYTLLPLKN.	.....	PVIIPGR
Yeasttreha	EYLPKKITAE	YVKSVDNTPG	LLALAMEEHF	NPSTGEKTLI	GYPYAVPGGR
	251				300
Ecoli2treha	FSETYYWDSY	FTMLGLAESG	REDLLKCMAD	NFAWMIENYG	HIPNGNRTTY
Ecolitreha	FREYYWDSY	FTMLGLAESG	HWKQVADMVA	NFAHEIDTYG	HIPNGNRSYY
Bommotreha	FKEIYYWDAY	WIIEGLLITD	MTETAKGMIE	NLIELLYKFG	HIPNGSRWYY
Tenmotreha	FTEFYWDSY	WIVEGLLLSD	MHETVRGMLD	NFLSIVEKYG	FIPNGARVYF
Rabbitreha	FVEFYWDSY	WVMEGLLLSE	MAETVKGMLQ	NFLDLVTAYG	HIPNGGRVYY
Potatotreha	FKEVYYWDSY	WVIRGLLASK	MYETAKGIVT	NLVSLIDQFG	YVLNGARAYY
Yeasttreha	FNELYGWDSY	MMALGLLEAN	KTDVARGMVE	HFIIEINHYG	KILNANRSYY

FIG. 4A

Fig. 4-1

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	301		350
Ecoli2treh	LSRSQPPVFA	LMVELFEEDG VR.....GA	..RRYLDHLK MEYAFWMDGA
Ecolitreha	LSRSQPPFFA	LMVELLAQHE GD.....AA	.LKQYLPQM KEYAYWMDGV
Bommotreha	QERSQPPLLA	AMIKLYYEKT KD.....IE	FIRKYISALE KELEYWLDT.
Tenmotreha	LNRSQPPLLT	LMVSLYVSAT ND.....ME	WLAKNIRTID TELRFWLNN.
Rabbitreha	LQRSQPPLLT	LMDRYVAHT GD.....LA	FLRENIETLA LELDFWAEN.
Potatotreha	SNRSQPPVLA	TMIVDIFNQT GD.....LN	LVRRLPAL KENHFWNSGI
Yeasttreha	LCRSQPPFLT	EMALVVFKKL GGRSNPDAVD	LLKRAFQASI KEYKTVWTAS
	351		400
Ecoli2treh	ESLIPNQAYR	HVVRMPDGSL LNRYWDDRT	PRDESWLEDV ETAK.HSG.R
Ecolitreha	ENLQAGQOEK	RVVKLQDGTI LNRYWDDRT	PRPESWVEDI ATAKSNPN.R
Bommotreha	.HLIA.....	.FNKDDRVYT LLRYI PSAG	PRPESYEDY ELAQKLDKNT
Tenmotreha	.RLVD.....	.VVKDGIVYK LAQYNSNSGS	PRPESYEDV TTASVFSDE
Rabbitreha	.RTIS.....	.VSSGGSNHT LNRYHVPYGG	PRPESYSKDT ELAHTLPEG.
Potatotreha	HKVTI.....	.QDAQGSNHS LSRYYAMWNK	PRPESSTIDS ETASVLPNIC
Yeasttreha	PRL.....	.....DPETG LSRYPNGLG	IPPETESDHF DTV.LLPYAS
	401		450
Ecoli2treh	PPNEVYRDLR	AGAASGW... .DYSSRWL..	...RDTGRLA SIRTQFIP.
Ecolitreha	PATEIYRDLR	SAAASGW... .DFSSRWM..	...DNPQQLN TLRTTSIVP.
Bommotreha	DPNDIYADLK	SAAESGW... .DFSTRWFIS	ESGDNSGNLT NLNTKNVIP.
Tenmotreha	DKAELYMDLK	SAAESGW... .DFSSRWIVD	EYGGTRGNLS ALHTRRIIP.
Rabbitreha	SWETLWAEK	AGAESGW... .DFSSRWLVG	..SPNPDSL SIRTSLKVP.
Potatotreha	EKRELYRELA	SAAESGW... .DFSSRWM..	...SNGSDLT TTSTTSILP.
Yeasttreha	KHGVTLDEFK	QLYNDGKIKE PKLDEFFLHD	RGVRESGHD TYRFEVCAY
	451		500
Ecoli2treh	...IDLNAFL	FKLESAIANI SALKGEKE..	.....TE ALFRQKASAR
Ecolitreha	...VDLNSLM	FKMEKILARA SKAAGDNA..	.....MA NOYETLANAR
Bommotreha	...VDLNAIF	AGALQITANF QAILKNPR..	.....RA AHWGYMAEQW
Tenmotreha	...VDLNAFL	CQAFQKLSEF YQTLGDYP..	.....NA TFWSKLVKIW
Rabbitreha	...VDLNAFL	CQAEELLSGF YSRLGNES..	.....QA TKYRNLAQR
Potatotreha	...VDLNAFL	LKMELDIAFL ANLVGESS..	.....TA SHFTEAAQNR
Yeasttreha	LATIDLNSLL	YKYEIDIADF IKEFCDDKYE	DPLDHSITTS AMWKEMAKIR
	501		550
Ecoli2treh	RDAVNRYLWD	DENGIYRDYD WRREQ... ..	.....A LFSAAAI VPL
Ecolitreha	QKGIEKYLWN	DQGWYADYD LKSHKV... ..	.....RN QLTAAALFPL
Bommotreha	RSSIEQALWD	EEDGVWHYD ILNKK... ..	.....PRR YFYTSNLAPL
Tenmotreha	QHSIEMVHYN	RDDGIWYDWD NELSQ... ..	.....HRR MFFPSNFAPL
Rabbitreha	IAALTALLWD	EDKGAWFDYD LENQK... ..	.....KNH EFYPSNLTP
Potatotreha	QKAINCIFWN	AEMGQWLDYW LTNSDTSEDI	YKWEDLHONK KSFASNFVPL
Yeasttreha	QEKITKYMWD	DESGFFFDYN TKIKH... ..	.....RTS YESATTFWAL
	551		600
Ecoli2treh	YVGMANHEQA	DRLANAVRSR LLT.....P	GG...ILASE YETGEQWDKP
Ecolitreha	YVNAAAKDRA	NKMATATKTH LLQ.....P	GG...LNTTS VKSGQQWDAP
Bommotreha	WMNAVEKPFL	AKHGARVLEY LHESQALEYP	GG...VPVSL VNSGEQWDFP
Tenmotreha	WSETFDSRNA	EILGEMAAEY FITQNMMDYH	GG...IPTSL SHTGEQWDYP
Rabbitreha	WAGCFSDPAI	A...DKALQY LQDSQILNHR	HG...IPTSL QNTGQQWDFP
Potatotreha	WTE.ISCDN	NITTQKVVQS LMSSGLLQ.P	AG...IAMTL SNTGQQWDFP
Yeasttreha	WAGLATKEQA	QKMVEKALPK LEMLGGLAAC	TERS RGPISI SRPIRQWDYP

FIG. 4B

Fig. 4-2

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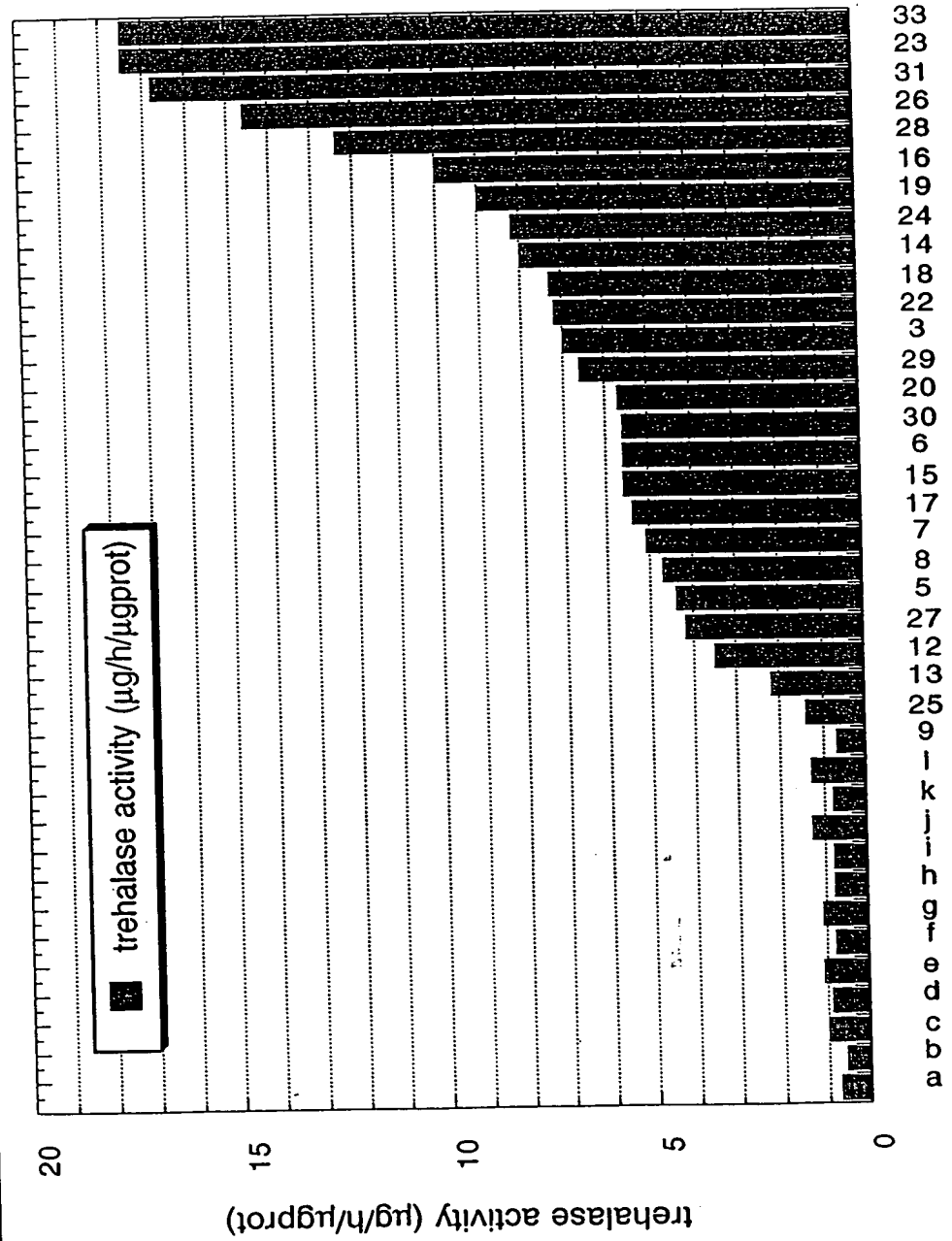
	601			650
Ecoli2treh	NGWAPLQWMA	IQGFKMYG...	.DDLKGDEIA	RSWLKTVNQF YLE.QHKLIE
Ecolitreha	NGWAPLQWVA	TEGLQNYG...	.QKEVAMDIS	WHFLTINVQHT YDR.EKKLVE
Bommotreha	NAWPPEVSIV	VTAIQNIQSE	ESSKLAKELA	QVWVRACKSG FTE.KKQMF
Tenmotreha	NAWPPMQSII	VMGLDKSGSY	RAKQLARELA	RRWVKANLIG FRQ.TGEMFE
Rabbitreha	NAWAPLQDLV	IRGLAKSPSA	RTQEVAFQLA	QNWIRTNFDV YSQ.RSAMY
Potatotreha	NGWPPLQHII	IEGLLRSGLE	EARTLAKDIA	IRWLRTNYVT YKK.TGAMY
Yeasttreha	FGWAPHQILA	WEGLRSYGYL	...TVTNRLA	YRWLFMMTKA FVDYNGIVVE
	651			700
Ecoli2treh	KYHIADGVPR	EGGGGEYPLQ	.....D	GFGWTNG... VVRRLLIGLYG
Ecolitreha	KYDVSTTGT.	GGGGGEYPLQ	.....D	GFGWTNG... VTLKMLDLIC
Bommotreha	KYDALNAGKY	.GGGGEYTVQ	.....D	GFGWSNG... VVLEFLDRYG
Tenmotreha	KYNVEVPGQN	.GGGGEYVVQ	.....S	GFGWTNG... VVLEFINQFF
Rabbitreha	KYDISNA.QP	.GGGGEYEYVQ	.....E	GFGWTNG... VALMLLDRYG
Potatotreha	KYDVTKCGAY	.GGGGEYMSQ	.....T	GFGWSNG... VVLALLEEFG
Yeasttreha	KYDVTRGTDP	HRVEAEYGNQ	GADFKGAATE	GFGWVNARYI LGLKYMNSYE
	701		732	
Ecoli2treh	EP.....	.....	.....	..
Ecolitreha	PKEQPCDNVP	ATRPTVKSAT	TOPSTKEAQP	TP
Bommotreha	AVLTSVDSVD	ASANNGQSNE	ESETDSKEK.	..
Tenmotreha	TT.....	.....	.....	..
Rabbitreha	DRLSSGTQLA	LLEPHCLAAA	LLLSFLTR..	..
Potatotreha	WPEDLKIDC.	.....	.....	..
Yeasttreha	RREIGACIPP	ISFFSSLRPQ	ERNLYGL...	..

FIG. 4C

~~Fig. 4-3~~



Trehalase activity in tobacco leaves transgenic for a potato trehalase cDNA



leaf sample

FIG. 5

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~~8/6~~ 8/8

Trehalose accumulation in microtubers

trehalose <i>mg.g⁻¹ fresh weight</i>					
pMOG1027 (845-11)		pMOG1027 (845-22)		pMOG1027 (845-28)	
9a	0.08	7a	0.02	3a	0.04
9b	0.21	7b	0.01	3b	0.15
11a	0.01	9a	0.02	15a	0.4
11b	0	9b	0.02	15b	ND
...		12a	0.09	18a	0
...		12b	0	18b	0.2
...		15a	0	26a	0.12
...		15b	0.01	26b	0.22
...		32a	0.01	27a	0.02
...		32b	0	27b	0.01
...		34a	0.01	31a	0.2
...		34b	0.01	31b	0.1
...		36a	0.01	34a	0.48
...		36b	0	34b	0.75
				38a	0.08
				38b	0.12
N= 25		N= 30		N= 29	

FIG. 6

~~Fig. 6~~